

BHARATHIAR UNIVERSITY, COIMBATORE.
B.Sc. Mathematics (Colleges)

SEMESTER VI; ELECTIVE III - C
Subject Title: PROGRAMMING IN C++ (Theory & Practical)

**(Revised paper for the students admitted from the academic year
2014-2015 and onwards)**

No. of Hours: 3

Subject Description: This paper presents the importance of class structure, operators, the types of inheritance and polymorphism, file handling.

Goals: To enable the students to learn about the class structure, operators, inheritance, polymorphism, file handling.

Objectives: On successful completion of the course the students should have learnt class structure, member functions & data members.

Learnt the concept of inheritance, types and example problems.

Learnt the concepts of polymorphism, types and problems.

Learnt the concepts of File handling.

UNIT-I:

Evolution of C++ - applications of C++ - structure of C++ program. Tokens – keywords – identifiers and constants – basic data types – user-defined data types – constant pointers and pointers to constants – symbolic constants –type compatibility – declaration of variables – dynamic initialization of variables – reference variables – operators in C++ - scope resolution operator – memory management operators – manipulators – type cast operator – expressions and their types – special assignment expressions – implicit conversions – operator precedence.

UNIT-II:

Functions in C++ : The main function – function prototyping – call by reference – return by reference – inline functions – default arguments – const arguments – function overloading.

Managing Console I/O Operations: C++ streams – C++ stream classes – unformatted console I/O operations – formatted console I/O operations –managing output with manipulators.

UNIT-III:

Classes and Objects: Specifying a class – defining member functions – making an outside function inline – nesting of member functions – private member functions – arrays within a class – memory allocation for objects –arrays of objects – objects as function arguments – friend functions – returning objects – const member functions.

Constructors and Destructors: Introduction – constructors – parameterized constructors – multiple constructors in a class – constructors with default arguments – copy constructor.

UNIT-IV:

Operator Overloading: Introduction – defining operator overloading – overloading unary operators – overloading binary operators - overloading binary operators using friends – rules for overloading operators.

UNIT-V:

Inheritance: Introduction – defining derived classes – single inheritance – making a private member inheritable – multilevel inheritance – multiple inheritance – hierarchical inheritance – hybrid inheritance.

Text Books:

1. E.Balagurusamy - ‘Object Oriented programming with C++’, McGraw Hill.
2. Robert Lafore – ‘Object oriented programming in Turbo C++’, Galgotia publications Pvt.Ltd, New Delhi- 110002 11994.
3. Bjarne Stroustrup – ‘The C++ programming language’, II Edition, Addison Wesley, 1991.

Reference Books:

1. D.Ravi Chandran – ‘Programming with C++’, Tata McGraw-Hill publishing company limited (1996), New Delhi.
2. Ashok N.Kamthane – ‘Object Oriented Programming with ANSI and Turbo C++’, Pearson Education publishers (2003).
3. John R.Hubbard – ‘Programming with C++’, 2nd Edition, TMH publishers (2002).